

REMARKS

Claims 1-38 were pending.

Claims 1-5, 7, 16-20, 26-27, 29-31, and 36-38 stand rejected. Claims 1, 26-27, 29, and 36 are amended. Claims 21-25, 28, and 32-35 are canceled.

THE AMENDMENT

Claims 1, 26-27, 29, and 36 have been amended to recite that the gradient is generated by the use of pressure driven flow. Support therefor can be found, for example at page 6, lines 13-22 of the Specification and in Claim 36.

No new matter has been added.

SPECIES ELECTION

Claim 1-38 were previously subject to a restrictions requirement, as well as for an election of species. As a result of Applicants' elections, Claims 6, 8-15, 21-25, 28, and 32-35 were withdrawn from consideration.

Claims 21-25, 28, and 32-35 are directed to a non-elected invention, and are now canceled.

However, Claims 6 and 8-15 are directed to a non-elected species, and therefore remain in this case. Applicants submit that §803.02 of the MPEP provides that the Examiner may require a provisional election of a single species prior to examination on the merits. This provisional election will be given effect *in the event* that the genus claim should be found not allowable. However, should no prior art be found that anticipates or renders obvious the elected species, the search of the genus claim should be extended.

REJECTION UNDER 35 U.S.C. §102(e) OR 35 U.S.C. §103(a) OVER MOON

Claims 1-5, 7, 16-20, 26-27, 29-31, and 36-38 remain rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,245,227 to Moon et al. (hereinafter "Moon"), or in the alternative under 35 U.S.C. §103(a) as being obvious over Moon.

The Office Action further states that if any differences exist between the claimed invention and the Moon disclosure, then such differences reside in optimizing the elements of Moon, and further that it would have been obvious to optimize the elements of Moon to enhance separation.

Anticipation of a claimed invention by a prior art reference under 35 U.S.C. §102 requires the presence in a single prior art reference of each and every element of a claimed invention. Applicants respectfully submit that the cited reference to Moon fails to disclose each and every element of the presently claimed devices.

To establish a *prima facie* case of obviousness, the Examiner must present a prior art reference which, when modified, teaches or suggests all the claim limitations. There must be some suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference in order to teach or suggest all the claim limitations. In addition, there must be a reasonable likelihood of success, viewed in the light of the prior art. The Examiner is relying upon the single Moon reference, in combination with the knowledge generally available to one of ordinary skill in the art. Based upon the foregoing requirements, Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness.

Independent Claims 1, 26, 27, 29, and 36, all require that the microfluidic device have a gradient-generation means for generating a gradient of a selected mobile-phase component in a mobile phase or a mobile-phase source that provides a mobile phase that exhibits a gradient of a selected mobile-phase. Further, the gradient is generated by the use of pressure driven flow. This feature of the invention is not taught or suggested by Moon, for the reasons detailed below.

Applicants argued previously that Moon does not describe gradient liquid chromatography or a system that provides for or uses a gradient mobile-phase component. In response, the Examiner refers to the Moon teaching at col. 31, lines 27-35, as describing two additional reservoirs that produce gradient elution. As such, the Examiner opines that a gradient generation means is disclosed in Moon.

Applicants had previously addressed this section of the Moon teaching, although incorrectly referring to col. 30, lines 27-35, which should have been col. 31, lines 27-35. Applicants pointed out that col. 30, line 64 to col. 31, line 2 (Fig. 35) of Moon describes the use of an upstream channel and posts for solid-phase extraction, as well as a waste reservoir. In the context of this embodiment, at col. 31, lines 27-35, Moon mentions that additional reservoirs downstream of the waste reservoir and upstream of the separation posts *contain gradient elution of analytes in one reservoir* and a diluent in the other reservoir. However,

Applicants disagree with the Examiner's contention that this embodiment teaches and/or suggests a gradient-generation means as is recited in the pending claims.

Further, Moon describes applying different voltages to the system, in essence using electrokinetic pumping (col. 31, lines 17-23). This is not the same as or suggestive of creating a gradient using pressure-driven flow.

The Moon reservoir, containing a gradient elution of analytes, is not the same as or suggestive of the integrated gradient-generation means for generating a gradient of a selected mobile-phase component in a mobile phase recited in independent Claim 1.

The Moon reservoir, containing a gradient elution of analytes, is not the same as or suggestive of the gradient-generation means recited in independent Claim 26. In particular, Claim 26 recites that the gradient-generation means comprises (i) a substrate having a microchannel with an upstream terminus and a downstream terminus, (ii) a cover plate arranged over the substrate surface, which in combination with the microchannel forms a mobile-phase holding conduit having a length defined by the upstream terminus and the downstream terminus, (iii) a plurality of inlet ports arranged along the length of the mobile-phase holding conduit, and (iv) an outlet port located downstream from the inlet ports of the mobile-phase holding conduit. A gradient-generation means having these elements is not taught or suggested by Moon. More specifically, this gradient-generation means is not taught or suggested by the Moon discussion at col. 31, lines 27-35, referred to by the Examiner.

The Moon reservoir, containing a gradient elution of analytes, is not the same as or suggestive of the integrated mobile-phase source recited in independent Claim 27. In particular, Claim 27 recites that the integrated mobile-phase source comprises a microconduit having a length defined by an upstream terminus and a downstream terminus, where the microconduit contains a mobile phase that exhibits a gradient of a selected mobile-phase component along the length of the microconduit. An integrated mobile-phase source having these elements is not taught or suggested by Moon. More specifically, this integrated mobile-phase source is not taught or suggested by the Moon discussion at col. 31, lines 27-35, referred to by the Examiner.

The Moon reservoir, containing a gradient elution of analytes, is not the same as or suggestive of the mobile-phase source recited in independent Claim 29. In particular, Claim 29 recites that the mobile-phase source comprises (i) a mobile-phase holding microconduit having a length defined by an upstream terminus and a downstream terminus, and an outlet

port located at the downstream terminus, and (ii) a mobile phase, contained in the mobile-phase holding microconduit, that exhibits differing concentrations of selected mobile-phase component along the length of the mobile-phase holding microconduit. A mobile-phase source having these elements is not taught or suggested by Moon. More specifically, this mobile-phase source is not taught or suggested by the Moon discussion at col. 31, lines 27-35, referred to by the Examiner.

The Moon reservoir, containing a gradient elution of analytes, is not the same as or suggestive of the microfluidic device recited in independent Claim 36. In particular, Claim 36 recites that the microfluidic device comprises a means for producing different concentrations of a selected mobile-phase component in different locations within a mobile phase, a plurality of mobile-phase sources each containing a mobile phase, and a means for introducing plugs of mobile phase from the mobile-phase sources through the at least one inlet port into the mobile-phase holding conduit such that the plugs are arranged in a predetermined order along the length of the mobile-phase holding conduit. A microfluidic device having these elements is not taught or suggested by Moon. More specifically, these elements of the microfluidic device are not taught or suggested by the Moon discussion at col. 31, lines 27-35, referred to by the Examiner.

In conclusion, Applicants submit that the cited Moon reference does not teach the invention as presently claimed. Applicants further submit that the cited Moon reference, whether viewed alone or in combination with the knowledge generally available to one of ordinary skill in the art, does not suggest the invention as presently claimed. Accordingly, Applicants submit that the invention is patentable under 35 U.S.C. §102(e) and 35 U.S.C. §103(a) and respectfully request reconsideration and withdrawal of these rejections.

SUMMARY

The above arguments and amendments to the Claims are submitted for the purpose of facilitating allowance of the Claims and a sincere effort has been made to place this application in condition for allowance. An early notice of allowance is earnestly requested.

In any event, the above amendments to the claims narrows the number of issues and places the application in better form for consideration on appeal. Accordingly, Applicants respectfully request that the amendment be entered for purposes of appeal.

If in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at (650) 330-0900.

Respectfully submitted,

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